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The Psychology of Learning: an Experimental Investigation of the Economy and Technique of Memory. By E. MEUMANN, Professor of Philosophy at Hamburg. Translated by JOHN WALLACE BAIRD, Clark University. New York, D. Appleton and Co., 1913, x + 393 pp.

This translation of Meumann's *Oekonomie und Technik des Lernens* is based on the third edition of the German work, which appeared in 1912. The present text approximates a complete exposition of the psychology of memory and its application to practical life and education.

In the preface to the American edition Meumann calls attention to the close community of interest and effort between this country and Germany in the fields of experimental psychology and experimental pedagogy. "It may indeed be said that these sciences have been created by the two nations. . . . In both countries there is a deep-rooted conviction that the most important problems of the science of education can be solved only by an appeal to experimental psychology, and by an application of the methods of psychology to the problems of pedagogy."

The scope of the book may be seen from an enumeration of its contents, although only a few of the more general features can be mentioned at any length. The first three chapters, including the introduction, are devoted to a preliminary discussion of learning and especially to a general analysis of the functions of memory. The relations between observation (perception) and memory have been worked out with great care in Chapters III and IV, in the former of which Meumann gives a very complete analysis of the process of observation and in the latter a resumé of experimental investigations of this function, their methods and results, especially as applied to children. The remaining chapters, comprising more than half of the entire volume, deal with Associative Learning: memory types; economical learning; conditions and technique of mechanical learning; stages of learning; retention and forgetting; the education of memory in the schools; etc.

The author's plan in connection with all these topics is first to make a minute and careful psychological analysis of the functions concerned, second to give a resumé of experimental results, and, finally, to apply the evidence thus obtained to the field of pedagogy. The thoroughness with which this purpose is carried out is admirable, and the book is full of helpful practical suggestions. The evaluation of experimental results is especially good, though one might wish in this connection that the author had drawn more freely from American sources at this point. It may be remarked in passing that of the 136 titles given in the bibliography at the end of the book only 24 are of English and American origin.

Besides the bibliography the book contains three appendixes entitled:

- I. The construction of series of non-sense syllables.
- II. The meaning of economy of time and energy in learning.
- III. Addenda from the most recent literature.

In the introductory chapter, Meumann seeks to make clear the meaning of "technique" and "economy" as applied to the learning process. In order to develop such a technique and promote economy of time and effort, it is necessary to consider not only the general conditions of learning but also more special conditions, such as those which depend on the specific purpose of the learning act and those

dependent on the *will* of the learner. It is worthy of note that a great deal of stress is made at this point and throughout the work on the importance of the will, though no attempt is made to analyze or describe this important factor. "The success of every mental activity, including the act of observing, depends not only upon the accomplishment of the component activities but chiefly upon the co-operation of the will. Will determines how much energy and persistence shall be devoted to the act of observing . . ." (p. 64.) And again, "We spur and impel the will from within whenever during the course of a long act of learning we detect that the attention is flagging . . ." (p. 283.) And yet again, "We profit from continued practise only in proportion as we incite the will to progress and arouse an intention to improve." (p. 360.)

In Chapter I, on the Modern Psychology of Memory, we come upon the author's view of general training which is the underlying doctrine of the book. Whenever training in memorizing takes place a two-fold result occurs: (1) the particular material or content is imprinted on consciousness and is thereafter capable of reproduction; (2) the "memory itself, i. e., our general retentive and reproductive capacity, is strengthened." (p. 6.) It is true that Meumann admits later that there is no such thing as "general memory," but the term conveniently expresses the fact that in every act of memory there is a formal training consisting in the increased capacity to acquire practice-dispositions and of setting attention and will to work in the service of memory. Furthermore, the term "general memory" is significant because of the fact that in all cases of the memorizing of special contents improvement takes place in other special memories more or less closely related to the function trained. The well-known results of the experimental work of Ebert and Meumann, on which the latter conclusion is mainly based, are reproduced in detail in a later chapter of the book, but no consideration is given to the divergency of results obtained by Dearborn and other investigators.

The practical outcome of this view is the emphasis on the importance of formal training. "Laboratory investigations of the development of the mental functions of adults show us what an enormous loss is entailed in modern education as a result of its prevailing emphasis upon content as the essential aim in teaching. In view of the fact that the students in our universities must be taught to see correctly and to hear correctly, that they scarcely know what their mechanical memory is capable of accomplishing, that accuracy and fidelity of description are not developed until they come to our laboratories for experiments, that elementary differences of endowment are levelled down so little during the first twenty years of their lives,—in view of all these facts, it appears that our modern system of education fails to fulfill the demands both of science and of practical life. . . . The memory of modern man is wholly neglected, in so far as its formal aspect is concerned; even an improper memory training is better than none at all." (p. 186.)

Another outstanding feature among the more general features of the book is Meumann's stress on the doctrine of types. We have types of attention, of association, of learning, of observation, and of memory and ideation. Individual differences in memory and ideation are fundamental in any account of the learning process and constitute the basis of the psychology of memory and the pedagogy of learning. Thus the typically slow learner is usually of the visual ideational type, though slow learning may also result from slow adaptation of

the learner's attention; the auditory-motor type of memorizer is more rapid, though less sure in learning. All-round development of imagery is the educational ideal. Meumann believes that these types are the result of congenital dispositions but that they are subject, though to a relatively slight degree, to the influence of training and education. Teachers should examine children with a view to discovering their memory types and also their attention types and the essential features of their methods of learning should be brought to the pupils' attention. Formal memory exercises should at first be adapted to the peculiar mental types of the children, but gradually there should be a transition to the development of an all-round training of imagery.

It is fortunate that this work on the learning process by the leading exponent of experimental education in Germany has been made accessible to the wide circle of American readers who are interested in this important field. Professor Baird has succeeded in rendering the work into English of clear and readable character—a task which those who have read the original will agree was no easy one. The detailed analyses, classifications and sub-classifications, added to the somewhat prolix (from an English point of view) style of the author, have not prevented the translator from giving us a work easily understandable by anyone familiar with psychological literature. At the same time the original has been faithfully followed and we now have for the first time in English a resumé of Meumann's views on education.

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Grundzüge der Psychotechnik, von HUGO MÜNSTERBERG, Leipzig, 1914.
Verlag von Johann Ambrosius Barth. 733 pp. Bibliography.

The *Grundzüge der Psychotechnik* was first formulated as a series of lectures at the University of Berlin—the first university to offer a course in Applied Psychology, the author tells us. It is dedicated to James McKeen Cattell. The principles laid down in Volume I, published many years ago, and which were worked out without especial changes in other publications, appear now in this—Volume VI—in their true meaning and justification. For according to the belief of the author, an investigation, scientific or otherwise, is of value in proportion as it contributes directly to the common good.

As in the case of other German publications of Münsterberg, this is a systemic treatise, written in textbook style, dogmatic in tone, with much attention to definition, distinction and illustration—but few facts. Indeed, it seems to be the view of the author that facts are relative and negligible—the theory's the thing. And this presentation of the theory is directed to man in his administrative capacity, as the following may indicate "If we are to change the world, to reform and improve men, to teach or to cure them, to make them perform efficient labor or to organize them for common action, then we must treat man as a system of causes which will produce certain effects. We must be able to foresee what will happen and to determine how we can mold the mind." This quotation taken from a corresponding English book by the author, represents fairly, I think, the author's point of view. It is the parent-child relation looked at from the parent's point of view. It is the individual to be manipulated by the administrator, not the individual from his own point of view which is investigated. The practical administrator, then, is the object of Professor Münsterberg's regard—the jurist, the physician, the preacher, the politician, the man of commerce. The book is in-